SN 10/616,610
Docket No. S-100,580
In Response to Office Action dated October 12, 2006

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An apparatus for creating an atmospheric mini-plasma, comprising,

~~a. a supply of a support gas;~~

~~b. a supply of a reactive gas;~~

~~c. a plasma generating region in communication with said gas supplies;~~

~~d. said plasma generating region comprising a first gas inlet, a plasma chamber having an inner wall coupled to said first gas inlet, and a plasma discharge opening coupled to said chamber;~~

~~e. a first planar electrode within said plasma chamber;~~

~~f. a second planar electrode within said plasma chamber, in parallel with said first planar electrode, said first and second planar electrodes used for applying a high voltage field for ionizing said support gas and said reactive gas at atmospheric pressure; and~~

~~g. a high voltage direct current power supply connected to said first and second planar electrodes.~~

a housing comprising an exit for an atmospheric mini-plasma generated inside the housing to exit the housing;

a discharge chamber within the housing;

a first electrode disposed within the discharge chamber;

a second electrode disposed within the discharge chamber and spaced apart from the first electrode such that a discharge gap is established between the first electrode and the second electrode, the first and second electrodes being configured to generate a mini-plasma that exits the housing;

an active reaction gas tube in fluid communication with the discharge chamber for sending active reaction gas into the discharge chamber; and

a plasma support gas tube in fluid communication with the discharge chamber for sending plasma support gas into the discharge chamber, wherein the plasma support gas tube, the active reaction gas tube, and the housing are configured such that active reaction gas that passes through the discharge chamber is surrounded by a layer of plasma support gas.

2-4. (cancelled)

5. (currently amended) The apparatus of claim 1, further comprising a first flowmeter for metering plasma support gas into the discharge chamber, and a second flowmeter for metering active reaction gas into the discharge chamber ~~where said support gas is metered from said support gas supply by a first flowmeter, and said reactive gas is metered from said reactive gas supply by a second flowmeter~~.

6. (currently amended) The apparatus of claim 1 ~~where said high voltage power supply comprises a direct current power source and a DC-DC converter~~, further comprising a power supply connected to the first electrode and the second electrode, the power supply providing voltage pulses to the electrodes to generate a mini-plasma discharge between the electrodes.

7. (currently amended) The apparatus of claim ~~1~~ 6, wherein said ~~where said high voltage~~ power supply comprises a direct current power source, a pulse generator connected to a switch, and a power transformer.

8. (currently amended) The apparatus of claim ~~6~~ 7, wherein ~~where~~ said direct current power source is a dry-cell battery.

9. (original) The apparatus of claim 8 where said dry-cell battery is an alkaline battery.

10-11. (cancelled)

12. (currently amended) The apparatus of claim 1 where said support gas ~~supply~~ is ~~selected from a group consisting of all~~ chosen from inert gases.

13. (currently amended) The apparatus of claim 1 where said support gas ~~supply~~ is selected from the group consisting of helium, argon, nitrogen, oxygen, and air.

14. (currently amended) The apparatus of claim 1 where said reactive gas ~~supply~~ is selected from the group consisting of oxygen, nitrogen, chlorine, and fluorine.

15. (currently amended) The apparatus of claim 1 wherein said reactive gas ~~supply~~ is selected from the group consisting of gaseous compounds of oxygen, nitrogen, chlorine, and fluorine.

16. (cancelled)

17. (new) An apparatus comprising a plurality of atmospheric mini-plasma devices, wherein each of the atmospheric mini-plasma devices comprises:

a housing comprising an exit for an atmospheric mini-plasma generated inside the housing to exit the housing;

a discharge chamber within the housing;

a first electrode disposed within the discharge chamber;

a second electrode disposed within the discharge chamber and spaced apart from the first electrode such that a discharge gap is established between the first electrode and the second electrode, the first and second electrodes being configured to generate a mini-plasma that exits the housing;

an active reaction gas tube in fluid communication with the discharge chamber for sending active reaction gas into the discharge chamber; and

a plasma support gas tube in fluid communication with the discharge chamber for sending plasma support gas into the discharge chamber, wherein the plasma support gas tube, the active reaction gas tube, and the housing are configured such that active reaction gas that passes through the discharge chamber is surrounded by a layer of plasma support gas.

18. (new) The apparatus of claim 17, wherein each of the atmospheric mini-plasma devices is connected to a common supply of active reaction gas and a common supply of plasma support gas.